**UNITED STATES DEPARTMENT OF COMMERCE**
**Chief Financial Officer**
**Assistant Secretary for Administration**
Washington, D.C. 20230

JAN - 4 2008

Mr. Brad Gustafson
Federal Energy Management Program, EE-2L
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-0121

Dear Mr. Gustafson:

In accordance with the Department of Energy's guidance, enclosed is the Department of Commerce's FY 2007 Annual Report on Federal Government Energy Management.

We are pleased to report a 22.3 percent reduction in facility energy usage for our facilities from the FY 2003 baseline. This reduction exceeds the 4 percent FY 2007 energy reduction goal of the *Energy Policy Act of 2005*, and the 6 percent FY 2007 energy reduction goal of Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*.

We are also pleased to report that 3 percent of our electrical energy consumption came from renewable energy sources, meeting the renewable energy usage goal for FY 2007. Furthermore, 88 percent of the Department's renewable energy is classified as "new" renewable energy, far exceeding the Federal goal of 50 percent.

If you have any questions or concerns regarding this matter, please contact me at (202) 482-1200 or Jana Brooks, Chief, Energy, Safety, and Environment Division, at (202) 482-6212.

Sincerely,

Fred E. Fanning
Director for Administrative Services

Enclosure

cc: Braulio Ramon, Associate Director, OREPMP

# FY 2007 Annual Report on Federal Government Energy Management

## U.S. Department of Commerce

I. **MANAGEMENT AND ADMINISTRATION.** The Department of Commerce's (DOC) energy program is outlined in Department Administrative Order (DAO) #217-16, *Federal Energy Management.* This DAO prescribes policies, assigns responsibilities, and provides program guidelines for energy management.

In addition, the Department uses the *Department of Commerce Strategic Implementation Plan for Energy Management (SIP)* to guide the Department in the implementation of the DAO. During fiscal year (FY) 2007, the Department drafted an update to the SIP to reflect the new requirements identified in Executive Order 13423 *Strengthening Federal Environmental, Energy, and Transportation Management.* The updated SIP is currently under review.

Operating units within the Department with responsibility for energy and water management in their facilities include the following:

- Office of the Secretary (OS) for the Department headquarters building in Washington, DC, and the tenant bureaus;
- National Oceanic and Atmospheric Administration (NOAA);
- National Institute of Standards and Technology (NIST);
- National Technical Information Service (NTIS); and
- Bureau of the Census (Census).

**A. Energy Management Infrastructure.** The energy management organizational infrastructure supporting DOC's energy management implementation plan is as follows:

1. **Senior Official**. Executive Order (E.O.) 13423 *Strengthening Federal Environmental, Energy, and Transportation Management* requires that each agency designate a senior official, who is compensated annually in an amount at or above the amount payable at level IV of the Executive Schedule, to be responsible for meeting the goals and requirements of E.O. 13423. The Department's Senior Energy Official is Mr. Otto J. Wolff, Chief Financial Officer and Assistant Secretary for Administration. His alternate is Mr. Fred E. Fanning, Director for Administrative Services. The Senior Energy Official, or his alternate, participates at the Senior Agency Officials meetings and ensures actions under the SIP are accomplished to meet Federal goals.

2. **FY 2007 Agency Energy Team**. The Department maintains an agency energy team consisting of appropriate procurement, legal, and technical representatives. The Agency Energy Team monitors the progress of the agency in implementing specific actions of the plan, and advises the DOC Energy Program Manager and/or Senior Agency Official of any action that should be taken to provide DOC

personnel with the training and resources necessary to ensure successful implementation. The FY 2007 DOC Energy Team was comprised of the following members:

- Jana Brooks, Chief, Energy, Safety & Environment Division, Office of Real Estate Policy and Major Programs, OS;
- Regina Larrabee, Energy Program Manager, Office of Real Estate Policy and Major Programs, OS;
- Nancy Barrere, Office of Acquisition Management and Financial Assistance, OS;
- Malcolm Orr, Attorney, General Law Division, OS;
- Butch Harned, Census;
- Jim Boyd, Engineering, Maintenance, Safety and Support Division , NIST;
- Daniel Gilmore, Chief, Facilities Engineering & Construction Group, NIST;
- Jatin R. Patel, Mechanical Engineer, Facilities Engineering, NIST;
- Byron Crenshaw, Energy Program Manager, NOAA; and
- Will Freeman, Environmental Compliance Division, NOAA.

The Agency Energy Team conducts quarterly web-meetings, which are open to all interested parties in the Department to participate.

**B. Management Tools.**

1. **Awards (Employee Incentive Programs).** The Department actively participates in the Federal Energy Management Program (FEMP) *You Have the Power* and *Federal Energy and Water Management Awards* programs. In FY 2007, the Department forwarded one nomination for the *Federal Energy and Water Management Awards*, and selected one Energy Champion and one Special Project for recognition. The Department participates in the Federal Energy Saver Showcase program, and nominated one Showcase project in FY 2007. NOAA's Great Lakes Maritime Heritage Center received an Energy Saver Showcase Facility Award at the 2007 Federal Energy and Water Management Awards Ceremony.

2. **Performance Evaluations.** Key personnel have references to the Department's energy program in their performance standards.

3. **Training and Education.** The Agency Energy Team promotes energy-related training opportunities for facility energy management personnel. Annually, employees attend the Federal government-sponsored energy training workshop.

   Operating units make energy awareness a key part of their energy programs, using materials provided through the FEMP *You Have the Power* program as well as other supplemental materials. The Department implements annual energy

conservation awareness campaigns in conjunction with Energy Awareness Month and Earth Day. The campaigns included displays, informational materials and posters in the Herbert C. Hoover Building (Hoover Building). Other DOC sites around the country conduct similar campaigns.

II. **ENERGY EFFICIENCY PERFORMANCE.** For FY 2007, the Department is reporting energy consumption in three categories: 1) Goal Subject Buildings, 2) Excluded Facilities, and 3) Non-Fleet Vehicle and Equipment. A complete profile of the Department's energy efficiency performance is shown in the *FY 2007 Energy Management Data Report* (Attachment 1).

### A. Energy Reduction Performance

1. **Goal Subject Buildings.** The Department had a 22.3 percent reduction in energy use as compared with the FY 2003 baseline. Goal Subject Buildings used 152,301 British thermal units (Btus) per gross square foot (Btu/GSF) in FY 2007 as compared with 195,967 Btu/GSF in FY 2003. The Department has exceeded the FY 2007 energy reduction goal of 6 percent for Goal Subject Buildings and is on-track to achieve the 30 percent reduction goal for FY 2015.

   The Department also supplements traditional energy reduction measures with purchases of renewable energy to reduce the amount of traditional (non-renewable) energy consumed. Excluding the renewable energy credits, the Department still exceeded the FY 2007 goal of 6 percent by achieving a 22 percent reduction in energy consumption.

2. **Excluded Facilities.** The Department has excluded several facilities from the requirements of EPACT 2005. These facilities, categorized as Assumed Excluded Structures, are primarily radar and radio transmitter facilities. See Attachment 2 for a list of Excluded Facilities.

3. **Non-Fleet Vehicle and Equipment Fuel Use.** NOAA operates a wide assortment of marine survey and research vessels. Airplanes and helicopters are flown in support of NOAA's environmental research missions. These aircraft provide scientists with airborne platforms necessary to collect the environmental and geographic data essential to their research. NOAA uses ethanol (E100 and E85), and biodiesel (B100 and B20) for its marine and aviation vehicles, along with traditional fuels such as gasoline, diesel fuel, aviation gasoline and jet fuel.

   NOAA schedules its marine operations in a manner that results in these vehicles being operated as efficiently as possible. Fuel usage for NOAA's marine vessels has remained relatively consistent in recent years, despite additional operations in the aftermath of Hurricane Katrina.

In keeping with its mission as a steward of the marine environment, NOAA continues to expand on its use of biodiesel products. NOAA now has four vessels that are totally petroleum-free. NOAA won a 2007 Closing the Circle Award for Green Purchasing for this initiative.

**B. Renewable Energy.** Operating units in the Department are responsible for funding and implementing the use of renewable energy.

1. **Self-generated Renewable Energy.** Small-scale projects that self-generate energy using renewable sources (such as photovoltaics or wind turbines) or renewable energy thermal projects (such as solar thermal, biomass, or geothermal) are used to supplement commercial power. NOAA continues to operate a 6 kilo-watt (kW) photovoltaic unit in American Samoa and a 10 kW photovoltaic system in San Diego, California. NIST continues to operate its 32 kW photovoltaic array on the roof of the Administration Building at its Gaithersburg, MD, facility. The NIST campus in Boulder, CO, also has solar-powered lighting for its Building 2 parking lot. In 2007, the NOAA and NIST systems produced a total of 26.8 Mega-Watt-hours (MWh) and 33.9 MWh of electricity, respectively.

2. **Purchased Renewable Energy.** NOAA continues to purchase wind-generated renewable power to supply a portion of the electrical needs at their Boulder, CO, facilities. In FY 2007, NOAA consumed 1,129 MWh of purchased renewable energy.

   NIST purchased 5,300 MWh of renewable energy certificates to meet their renewable energy goals for FY 2007.

   In addition, the Department purchased 1,900 MWh of renewable energy certificates to ensure the Department met the energy reduction and renewable energy purchasing goals for FY 2007.

**C. Water Conservation.** FY 2007 consumption is estimated to be 352.1 million gallons, at a cost of $1.6 million.

The Department's water consumption baseline is composed of actual water meter readings for the NIST, NTIS and OS facilities. The Census facility obtains its water from an on-site well, and estimates its consumption. NOAA facilities are a combination of metered water usage and estimated well water consumption.

NIST is constructing a project to reclaim ground water at the Advanced Measurement Laboratory complex in Gaithersburg, MD, to redirect this water as make-up water at the Central Plant's cooling towers. The project is expected to be completed in FY 2008 and meet all water conservation metrics mandated by E.O. 13423. NIST also installed low-flow aerators on all sinks and showers at the at its Boulder, CO, facility.

The OS staff implemented a plan to fix leaking water fixtures in the Herbert C. Hoover Building (HCHB), and initiated a public awareness campaign announcing the program and encouraging HCHB employees to report leaks promptly.

**D. Metering of Electricity Use.** EPACT '05, Section 103, requires all Federal agencies to install metering and advanced metering where found to be cost-effective, according to guidelines developed by DOE.

The NIST staff has identified the facilities requiring advanced meters on both their Gaithersburg, MD, campus, as well as their Boulder, CO, campus. NIST has used an advanced metering system at their Gaithersburg, MD, site for several years, and has advanced metering installed on 85 percent of its appropriate facilities (22 buildings) on the campus. During FY 2007, NIST completed installation of advanced metering on two additional buildings on its Gaithersburg, MD, campus.

The HCHB in Washington, DC, is a GSA-owned building and has been identified to undergo a major multi-year renovation. Advanced metering will be installed as part of the renovation project. Other Department facilities have been more of a challenge for advanced metering. Census occupies a group of small, GSA-owned buildings in Jeffersonville, IN, most of which are already separately metered with standard meters. Census will work with GSA to determine if the metering should be upgraded, and if so, who should pay for the project. NOAA's facilities are primarily small buildings. NOAA is in the process of identifying those buildings that require metering upgrades, and programming them for installation of the advanced meters.

**E. Federal Building Energy Efficiency Standards.** EPACT '05, Section 109, requires that new Federal buildings be designed to achieve energy consumption levels that are at least 30 percent below the levels established in the American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard or the International Energy Conservation Code, as appropriate, if life-cycle cost-effective. Information was distributed to Department personnel as it became available.

During FY 2007, the Department reported only one new design start. The project is listed in the data report, but it is too early in the process to have any clear design expectations for energy usage. The Department's goal is to meet the new energy standard.

## III. IMPLEMENTATION HIGHLIGHTS OF FY 2007.

As a diverse agency, the Department makes use of a variety of energy conservation strategies. The following energy strategies have been employed during FY 2007:

**A. Retrofits and Capital Improvement Projects.**

- NOAA makes considerable use of this strategy as it tries to improve the condition of its facilities. Operations are being consolidated where possible to make better use of its resources, and to take advantage of economy of scale.
- OS staff is working closely with GSA's design team to ensure that energy efficiency is incorporated into the HCHB Renovation Project.
- NIST is retrofitting some of the old HVAC systems in Gaithersburg with energy-efficient systems and Direct Digital Controls integrated into the site's Energy Management System. Upgrades will continue in FY 2008.
- NIST continues to address roofing system insulation deficiencies revealed by an aerial infrared survey of Gaithersburg campus in 2005. Repairs/replacements will continue in FY 2008.
- NIST is implementing a utility systems upgrade of the aging service distribution lines on the Gaithersburg campus. The first phase of the steam distribution replacement contract is 95 percent complete.
- NIST installed 141 Energy Star motors on fans and air handlers which normally run 24 hours a day, replaced all the steam traps in Building 1, and installed 60 aerators on bathroom sinks in an attempt to improve the energy and water efficiency of the Boulder campus.
- NIST is continuing construction of the Central Utility Plant on its Boulder campus.

**B. Use of Performance Contracts.**

1. Energy-Savings Performance Contracts (ESPCs).

   - NOAA continues to try to find a way to utilize ESPC. A strategy has been developed to combine small facilities to be more attractive to the Energy Savings Companies.
   - The Department Energy Program Manager participates in the Federal ESPC Steering Committee, and has requested that the committee create a working group to develop solutions for small sites.
   - NIST made all final payments for its ESPC contract in Gaithersburg, MD, closing out the existing contract.

2. Utility Energy Services Contracts (UESCs).
   - The Census is working with its local utility company in Jeffersonville, IN, to develop a UESC for the Jeffersonville Federal Center. Unfortunately, no cost effective projects were identified.
   - NOAA is investigating the use of UESCs in locations where ESPCs cannot be used.

**C. Use of ENERGY STAR® and Other Energy-Efficient Products.**

- The Department supports the use of ENERGY STAR® and other energy-efficient products. Information on the availability and benefits of purchasing ENERGY

STAR® products has been distributed to the appropriate functional managers and their contracting officers.

- The Department's Office of Acquisition Management and Financial Assistance is working with other Federal agencies through the Federal Acquisition Regulation Council to implement the new EPACT 2005 procurement requirements for energy-efficient products.

**D. Sustainable Building Design and High-Performance Buildings.**

The Department supports sustainable building design. All new buildings and major renovations are designed to target a minimum of a "silver" rating in the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program, if cost-effective.

NOAA has adopted sustainable building design principles developed under the LEED certification program, and is incorporating them into the siting, design, and construction of new facilities. Two NOAA facilities have already received LEED certification. NOAA is currently pursuing LEED certification for the following completed construction projects:

- Weather Forecasting Office, Key West, FL;
- David Skaggs Research Center, Boulder, CO;
- Great Lakes Maritime Heritage Center - Thunder Bay National Marine Sanctuary, Alpena, MI; and
- Dr. Nancy Foster Florida Keys Environmental Complex, Key West, FL.

Eleven additional NOAA facilities are in various stages of design and construction, and are expected to earn LEED certification requirements. NIST is also incorporating sustainable design principles into the design of its laboratory expansion project in Boulder, CO.

In addition, the Department is working with GSA to achieve a LEED-Silver rating for four new construction and major renovation projects including:

- U.S. Census Bureau Headquarters, Suitland MD;
- NOAA Satellite Operations Center, Suitland, MD;
- National Logistics Support Center and National Reconditioning Center, Kansas City, MO; and
- Renovation of the HCHB, Washington, DC.

**F. Energy Efficiency/Sustainable Design in Lease Provisions.**

- GSA leasing guidance is followed for buildings leased by and for the Department. Energy and water efficiency are considered along with other factors when entering into new leases.

- The Bureaus have been active players in the procurement of leased facilities through GSA, requiring energy efficiency and "green" features in their buildings.

## IV. DATA TABLES AND INVENTORIES.

**A. FY 2007 Annual Energy Management Data Report.** See Attachment 1.

**B. Excluded Facilities Inventory**. See Attachment 2.

# ATTACHMENT 1

# FY 2007 Energy Management Data Report

# U.S. Department of Commerce Facilities

# FY 2007 ENERGY MANAGEMENT DATA REPORT

Agency: U.S. Department of Commerce
Date: 12/12/2007
Prepared by: Regina Larrabee
Phone: 202-482-2345

**PART 1: ENERGY/WATER CONSUMPTION AND COST DATA**

**1-1. EPACT/E.O. 13423 Goal Subject Buildings**

| Energy Type | Consumption Units | Annual Consumption | Annual Cost (Thou. $) | Unit Cost ($) | Site-Delivered Btu (Billion) | Est. Source Btu (Billion) | Est. GHG Emissions ($MTCO_2e$) |
|---|---|---|---|---|---|---|---|
| Electricity | MWH | 312,840.2 | $33,712.8 | $0.11 /kWh | 1,067.4 | 3,707.2 | 206,982 |
| Fuel Oil | Thou. Gal. | 413.3 | $881.8 | $2.13 /gallon | 57.3 | 57.3 | 4,205 |
| Natural Gas | Thou. Cubic Ft. | 872,231.9 | $11,053.5 | $12.67 /Thou Cu Ft | 899.3 | 899.3 | 47,796 |
| LPG/Propane | Thou. Gal. | 8.0 | $34.5 | $4.32 /gallon | 0.8 | 0.8 | 48 |
| Coal | S. Ton | 0.0 | $0.0 | #DIV/0! /S. Ton | 0.0 | 0.0 | 0 |
| Purch. Steam | BBtu | 54.7 | $2,047.1 | $37.45 /MMBtu | 54.7 | 76.0 | 7,290 |
| Other | BBtu | 0.0 | $0.0 | #DIV/0! /MMBtu | 0.0 | 0.0 | |
| | | Total Costs: | $47,729.7 | Total: | 2,079.4 | 4,740.5 | 266,321 |
| Goal Subject Buildings (Thou. Gross Square Feet) | | 13,602.9 | | Btu/GSF: | 152,867 | 348,491 | |
| | | | | Btu/GSF w/ RE Purchase Credit: | 152,301 | 346,525 | |
| | | | | Btu/GSF w/ RE & Source Btu Credit: | 152,301 | 346,525 | |

**1-2. EPACT/E.O. 13423 Goal Excluded Facilities**

| Energy Type | Consumption Units | Annual Consumption | Annual Cost (Thou. $) | Unit Cost ($) | Site-Delivered Btu (Billion) | Est. Source Btu (Billion) | Est. GHG Emissions ($MTCO_2e$) |
|---|---|---|---|---|---|---|---|
| Electricity | MWH | 2,994.4 | $415.5 | $0.14 /kWh | 10.2 | 35.5 | 1,981 |
| Fuel Oil | Thou. Gal. | 0.0 | $0.0 | #DIV/0! /gallon | 0.0 | 0.0 | 0 |
| Natural Gas | Thou. Cubic Ft. | 5,347.1 | $73.2 | $13.68 /Thou Cu Ft | 5.5 | 5.5 | 293 |
| LPG/Propane | Thou. Gal. | 0.0 | $0.0 | #DIV/0! /gallon | 0.0 | 0.0 | 0 |
| Coal | S. Ton | 0.0 | $0.0 | #DIV/0! /S. Ton | 0.0 | 0.0 | 0 |
| Purch. Steam | BBtu | 0.0 | $0.0 | #DIV/0! /MMBtu | 0.0 | 0.0 | 0 |
| Other | BBtu | 0.0 | $0.0 | #DIV/0! /MMBtu | 0.0 | 0.0 | |
| | | Total Costs: | $488.7 | Total: | 15.7 | 41.0 | 2,274 |
| Goal Excluded Facilities (Thou. Gross Square Feet) | | 25.0 | | Btu/GSF: | 629,200 | 1,639,880 | |
| | | | | Btu/GSF w/ RE Purchase Credit: | 629,200 | 1,639,880 | |
| | | | | Btu/GSF w/ RE & Source Btu Credit: | 629,200 | 1,639,880 | |

**1-3. Non-Fleet Vehicles and Other Equipment (Does not include Fleet Vehicle Data Captured by FAST System)**

| | Consumption Units | Annual Consumption | Annual Cost (Thou. $) | Unit Cost ($) | Btu (Billion) | Est. GHG Emissions ($MTCO_2$) |
|---|---|---|---|---|---|---|
| Auto Gasoline | Thou. Gal. | 5.4 | $10.2 | $1.90 /gallon | 0.7 | 48 |
| Diesel-Distillate | Thou. Gal. | 5,151.9 | $11,592.8 | $2.25 /gallon | 714.6 | 52,271 |
| LPG/Propane | Thou. Gal. | 0.0 | $0.0 | #DIV/0! /gallon | 0.0 | 0 |
| Aviation Gasoline | Thou. Gal. | 13.9 | $59.3 | $4.25 /gallon | 1.7 | 121 |
| Jet Fuel | Thou. Gal. | 701.1 | $1,931.4 | $2.76 /gallon | 91.1 | 6,460 |
| Navy Special | Thou. Gal. | 0.0 | $0.0 | #DIV/0! /gallon | 0.0 | 0 |
| Other | BBtu | 2.5 | $52.2 | $20.86 /MMBtu | 2.5 | |
| | | Total Costs: | $13,645.9 | | 810.6 | 58,899 |

**Optional 1-3a. Fleet Vehicle Consumption and Costs Captured by the FAST System**

(Input reflects format of Section IV, Part C, Annual Fuel Consumption Report, by Fuel Type of FAST SF 82 - Aggregate Combined Report)

| Description | Consumption Units | Annual Consumption | Annual Cost (Actual $) | Btu (Billion) |
|---|---|---|---|---|
| Biodiesel | GEG | 0.0 | $0.0 | 0.0 |
| Diesel | GEG | 0.0 | $0.0 | 0.0 |
| Electric | GEG | 0.0 | $0.0 | 0.0 |
| E-85 | GEG | 0.0 | $0.0 | 0.0 |
| Gasoline | GEG | 0.0 | $0.0 | 0.0 |
| Hydrogen | GEG | 0.0 | $0.0 | 0.0 |
| M-85 | GEG | 0.0 | $0.0 | 0.0 |
| LPG | GEG | 0.0 | $0.0 | 0.0 |
| NG | GEG | 0.0 | $0.0 | 0.0 |
| Other | GEG | 0.0 | $0.0 | 0.0 |
| TOTAL | GEG | 0.0 | $0.0 | 0.0 |